APHIS Info Sheet

Veterinary Services
Centers for Epidemiology and Animal Health

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Types and Costs of Respiratory Disease Treatments in U.S. Feedlots[1]

Respiratory disease (bovine respiratory disease, shipping fever) is the most common cause of morbidity and mortality in cattle feedlots. Often, respiratory disease is caused by co-infections with pathogens such as bovine viral diarrhea (BVD) virus, infectious bovine rhinotracheitis (IBR) virus, and bacteria such as *Mannheimia*, and *Pasteurella*. Overall, an estimated 16.2 percent of cattle placed in feedlots showed signs of respiratory disease at some point during the feeding period. Cattle experiencing respiratory disease usually reduce feed intake, and a percentage of these animals die, making respiratory disease costly for the feedlot industry. Feedlot operators have many treatment choices for respiratory disease, and costs vary with treatment type.

The U.S. Department of Agriculture's National Animal Health Monitoring System (NAHMS) conducted the Feedlot 2011 study, an in-depth look at large feedlots (capacity of 1,000 or more head) in 12 States,[2] and small feedlots (capacity of fewer than 1,000 head in 13 States.[3] The 12 participating States accounted for over 95 percent of the inventory in large feedlots (NASS Cattle on Feed report, February 18, 2011). As part of the NAHMS Feedlot 2011 study, data were collected on the usual treatment protocols for and the average cost of treating cattle with respiratory disease.

This information sheet describes treatment for respiratory disease for cattle on large feedlots, which were categorized into two groups: those with a capacity of 1,000 to 7,999 head and those with a capacity of 8,000 or more head. Feedlots with capacity of 1,000 head or more accounted for 82.1 percent of the January 1, 2011, inventory in all U.S. feedlots, but only 2.8 percent of all feedlots.

Respiratory disease treatments

Most of the 16.2 percent of cattle affected with respiratory disease (87.5 percent) were treated. Some cattle with respiratory disease may not have been treated if it was deemed that they were unlikely to respond because of the type or severity of disease. In addition, some cattle with mild cases of respiratory disease are not detected or treated.

Respiratory disease treatments like antibiotics are directed at pathogens, whereas other treatments may be used to enhance the cattle's immune system. Antibiotics used to treat respiratory disease may be delivered orally or by injection. Nearly all feedlots treating cattle for respiratory disease used an injectable antibiotic, and essentially all cattle treated for respiratory disease received an injectable antibiotic (table 1).

Table 1. Percentage of feedlots and percentage of cattle by treatment usually given to cattle as part of an initial course of treatment for respiratory disease

Treatment	Percent feedlots*	Percent cattle**
Injectable antibiotic	99.0	100.0
Oral antibiotic	14.9	3.0
Vitamin C injection	7.8	34.1
Vitamin B injection	16.8	5.4
Respiratory vaccination (e.g., IBR)	39.3	48.5
Corticosteroid (e.g., dexamethasone)	30.9	10.1
Nonsteroidal anti-inflammatory (e.g., flunixin, aspirin)	55.9	19.6
Antihistamine	16.7	5.4
Anthelmintic (dewormer)	3.6	1.5
Probiotic paste	18.2	6.7
Oral electrolyte, fluids, drenches	16.4	6.8
Other	0.0	0.0

* Percentage of feedlots that treated cattle for respiratory disease by use of specified treatments for at least some cattle.

** Percentage of cattle treated for respiratory disease receiving the specified treatment.

[1] For feedlots with at least 1,000 head capacity.

[2] Arizona, California, Colorado, Idaho, Iowa, Kansas, Nebraska, New Mexico, Oklahoma, South Dakota, Texas, Washington.

[3] Illinois, Indiana, Iowa, Kansas, Michigan, Minnesota, Missouri, Nebraska, Ohio, Pennsylvania, South Dakota, Texas, Wisconsin.

In addition, 14.9 percent of feedlots that treated cattle for respiratory disease used an oral antibiotic, resulting in 3.0 percent of treated cattle getting an oral antibiotic. The use of oral antibiotics for treating respiratory disease was more common in feedlots with a capacity of 1,000 to 7,999 head (20.2 percent) than in feedlots with capacity of 8,000 or more head (2.2 percent).

The majority of feedlots (55.9 percent) used some nonsteroidal anti-inflammatory drugs. Use of these products was more common in feedlots with a capacity of 1,000 to 7,999 head than in feedlots with a capacity of 8,000 or more head. Approximately two of five feedlots used a respiratory vaccine as part of the treatment for at least some cattle. About one of three feedlots used a corticosteroid for some cattle. Other supportive treatments such as vitamin injections and efforts to support the gastrointestinal flora (e.g., probiotic pastes, oral electrolytes) were used by less than one of five feedlots.

Nearly half the cases of respiratory disease that were treated were given a respiratory vaccine. Approximately one of three affected and treated cattle were given vitamin C by injection. Less than one of five affected and treated cattle received each of the other specified treatments. The percentages of affected and treated cattle receiving some of the treatments differed substantially by feedlot capacity. Cattle in feedlots with a capacity of 1,000 to 7,999 head were much more likely than cattle in feedlots with 8,000 or more head to receive vitamin B injections, a corticosteroid, a nonsteroidal anti-inflammatory, a probiotic paste, or oral electrolytes, fluids, or drenches.

Cost of treatment for respiratory disease

The cost of treatment for a case of respiratory disease depends on the treatment regimen used, including which products are used and how many times they are applied during the course of treatment. The average cost of treatment for a single case of respiratory disease was $23.60. This cost did not differ by feedlot capacity: feedlots with a capacity of 1,000 to 7,999 head ($23.40) compared with feedlots with a capacity of 8,000 or more head ($23.90). These reported costs are substantially higher than those reported during a similar study in 1999 in which the average per case treatment cost was $12.59. The cost of treatment for respiratory disease was compared with the costs of treating acute interstitial pneumonia ($21.70 per case) and central nervous system disease ($20.10 per case), but were much higher than the costs of treatment for lameness ($13.40 per case) and digestive problems ($9.90 per case).

Summary

Nearly all cattle treated for respiratory disease in feedlots were treated with an antibiotic injection; some cattle also received oral antibiotics. Other treatments included vitamin injections, vaccines, and anti-inflammatory drugs. The use of products other than injectable antibiotics varied, which may be related to past experience of the feedlot operator, perceived underlying etiology of the disease, and current condition of the cattle.

The direct cost of treatment of respiratory disease in feedlot cattle is substantial at $23.60 per case. These costs appear to have nearly doubled since 1999, when the cost of treatment was estimated at $12.59 per case. The overall cost of respiratory disease for the industry is not simply the product of these direct costs and the estimated number of cases annually. The total cost for the industry must account for production losses due to morbidity and mortality. However, the direct cost alone highlights the reason that feedlot operators' management strategies are frequently directed at minimizing the occurrence of respiratory disease in these cattle.

For more information, contact:

USDA–APHIS–VS–CEAH–NAHMS
NRRC Building B, M.S. 2E7
2150 Centre Avenue
Fort Collins, CO 80526-8117
970.494.7000
http://nahms.aphis.usda.gov

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